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To: All Field Offices

From: Director, National Applied Resource Sciences
Center

Subject: Interim Revision of Wildlife Risk Management
Criteria, Technical Note 390

Issued in 1996, Technical Note 390, Risk Management Criteria for Metals at BLM Mining Sites, contains soils criteria for protection of human health and wildlife. This information bulletin is provided to revise and update the soil risk management criteria (RMC) for wildlife. These criteria may be used as guidelines for assessing the level of hazard presented by metals contaminated sites. The human RMC are unchanged.

There have been several new developments that warranted this update. Karl Ford, National Applied Resource Sciences Center (NARSC) Toxicologist, serves on EPA's National Work Group for Soil Screening Levels for Ecological Receptors, and new methods are being developed by that group. The values in Table 1 should be considered interim until EPA finalizes its values. In addition, NARSC is working with other agencies on several ecological risk assessments for mining sites and we have identified some changes in methodology, toxicity and exposure factors. Finally, several new species have been added to the list. Instead of calculating a confidence interval as in the December 1996 Technical Note, the median value is presented. You will notice that species that feed on soil invertebrates have the lowest criteria (e.g., robin).

As stated in Technical Note 390, these values have uncertainties associated with exposure factors and interspecies extrapolations. Site-specific conditions may increase the criterion, particularly due to estimates of bioavailability and size of home range versus size of contamination (area use factor). To assess bioavailability, the use of an *in-vitro* bioaccessibility test is recommended. Because of various toxicological and site-specific uncertainties, the following guidelines are advised:

- ! less than or equal to the criteria: low risk
- ! >1-10 times the criteria: moderate risk
- ! >10-100 times the criteria: high risk
- ! >100 times the criteria: extremely high risk

Table 1 below summarizes the revised interim wildlife criteria:

Table 1. Wildlife and Livestock Risk Management Criteria for Metals in Soils (mg/kg)						
	Arsenic	Cadmium	Copper	Lead	Mercury	Zinc
deer mouse	230	7	640	142	2	419
cottontail	438	6	358	172	15	373
bighorn sheep	387	9	64	152	6	369
white-tailed deer	319	3	128	124	11	267
mule deer	200	3	102	106	9	222
elk	328	3	131	127	11	275
cattle	419	15	413	244	45	1082
sheep	352	12	86	203	38	545
mallard	116	1	141	59	4	196
Canada goose	61	2	161	34	6	271
trumpeter swan	76	2	201	43	7	340
robin	4	0.3	7	6	1	43
median	275	3	136	125	8	307

These criteria are for exposure to a single metal. Commonly, more than one metal is present and the convention is to calculate a hazard index as the sum of the ratios of the field concentrations divided by the RMC for each metal present.

If you have any questions concerning this information or need assistance with interpreting contaminant data, please contact Dr. Karl Ford at 303-236-6622.

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